# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/646,072 | 08/22/2003 | Heinrich Roder | 021607.0101USPT | 8444 |

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| EXAMINER |
|---|
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| ART UNIT | PAPER NUMBER |
|---|---|
| 2881 | |

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 10/646,072 | RODER, HEINRICH |
| | **Examiner** | **Art Unit** | |
| | David A. Vanore | 2881 | |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>30 September 2005</u>.

2a)☒ This action is **FINAL**.    2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) <u>33,35,41,43,69 and 70</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>33,35,41,43,69 and 70</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>15 December 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

## *Response to Arguments*

1. Applicant's arguments filed August 19, 2005 have been fully considered but they are not persuasive.

2. The applicant has based their rebuttal of the previous rejection of claims 33, 35, 41, and 43 on the purported lack of teaching in Yates, III et al. (USPN 6,017,693).

3. The applicant argues at pages 4-5 of the response that the broad interpretation of the phrase "hierarchical data format", by the examiner as meaning a data format having a "graded or ranked organization" is not applicable because the specification defines "hierarchical data format" to mean "a format that includes or stores increasingly higher resolutions in a non-redundant way."

4. In order to eliminate redundancy in a set of data, each item must be tagged and discriminated against the remaining items in a way such that each item is ranked or graded against the totality of the data set. The interpretation and explanation of the relevance of the Yates, III et al. teaching encompasses the more narrow definition set forth in the specification of "hierarchical data format" because the hierarchical data claimed in the instant application still must be graded or ranked based on a selected feature of the elements of said data.

5. Claims 33, 35, 41, and 43 stand rejected.

6. Regarding new claims 69 and 70, the limitations presented therein were not present in previously treated on the merits claims 33, 35, 41, and 43.

7. Claims 69 and 70 are addressed on the merits in the action below.

## *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 33, 35, 41, and 43 stand rejected under 35 U.S.C. 102(b) as being clearly

anticipated by Yates, III et al. (USPN 6,017,693 A).


Claim 41 recites a system for processing mass spectrometry data comprising a

storage unit and a processing unit in communication with the storage unit and

configured to articulate the method recited in claim 33. Therefore, claims 33 and 41 will

be treated simultaneously below.

Yates, III et al. teaches a system and method for processing mass spectrometry

data utilizing a computing means (Col. 4 Lines 30-34) having a processing means and a

storage unit which are in communication with one another (Note Example 1 at Col. 11

Lines 14-32).

The storage unit receives raw data from the mass spectrometer and stores

transformed data where the transformed data has a hierarchical data format. In the

context of Yates, III et al., the definition of hierarchical must be taken into account. As

defined, the term hierarchical relates to the term hierarchy which implies having a

graded or ranked organization. In the instant case, the raw spectral data is appended to

indicate the presence or lack of presence of certain peptides. This substantially

coincides with the "grading" of elements in the mass spectrometer data. Such an operation transforms the raw data to a graded dataset where certain features of each sequence in the dataset are indicated on each said sequence. Note Col. 11 Lines 1-13 and Fig. 6A where the steps of receiving raw data and sorting said raw data to impart a structure to the raw data are illustrated. Fig. 6A is an illustration of the "transformation" of raw data in Yates, III et al. into a transformed data. This transformed data is saved onto a storage medium, note Col. 9 Lines 42-49. Regarding the limitation where the transformed data having a hierarchical data format for use at multiple resolutions, Yates III, et al. teaches that the data is appended to indicate the presence of certain peptides, and further parses the data into 2 groups where the first group consists of the 200 most intense ions and the second group comprising the remaining ions. The second group is divided into 10 mass regions, where the maximum intensity is normalized within each region. Resolution is taken in the context of this application to mean the fineness of detail that can be distinguished of a given characteristic of a set of data. In the instant application and prior art, Yates, III et al. teaches the division of the data based on the intensity over different mass regions. Therefore, each different mass region data group provides a different resolution of the detected mass spectral data and the data format thus created by the method and apparatus of Yates, III et al. is useable at multiple resolutions.

The processing unit of the computing means of Yates, III et al. carries out the actions above automatically (Col. 4 Lines 30-34) and is further configured to articulate the following method steps:

1) The receiving of a request to perform an operation utilizing at least a portion of the transformed data is taught in Yates, III et al. After the data transformation described above, Yates, III et al. teaches that a search operation is performed on the transformed data as illustrated in Fig. 6B and described at Col. 9-10 in the disclosure of Yates, III et al. The computer processor must respond to a request to carry out such an operation, whether the source is a human operator prompting the operation or whether by code internal to the processing means in the form of hardware(firmware) or software. The fact that an operation is carried out carries with it the implicit reception of a request to perform the operation.

2) The accessing of transformed data corresponds to the processor accessing the storage unit and loading the transformed data of above. Note Col. 9 Lines 50-54 where Yates, III et al. teaches that the previously discussed transformed data is loaded. The loading corresponds not only to the accessing of the transformed data, but also to the production of the transformed data because in a computer, a processor must first access a data storage means, locate, and then retrieve the desired data by cause the storage means to output the data to the processing means.

3) The selection of parameters to use for a selected resolution of the transformed data. In Fig. 6B, step 636 requires the loading of search parameters. The

use of such parameters and the fact that they are used to define the limits of the search

operation implicitly mean that they are selected. Without first being selected, the

parameters cannot be used.

4) The production of a transformed data set at the selected resolution as a

function of the selected parameters. As pointed out above, the loading step

corresponds to the accessing and production of data from a transformed dataset.

5) The performance of the requested operation of the transformed dataset at the

selected resolution to generate a result for the operation in response to receiving the

request. In the instant case, Yates, III et al. teaches that the selected operation is a

search operation carried out in accordance with the details of Fig. 6C using the

previously indicated transformed data and in accordance the previously established

search parameters (Col. 9 Line 50 through Col. 10 Line 44).


Regarding claims 35 and 43, said claims recite that the operation includes

searching for transformed data having certain properties. As previously pointed out,

Yates, III et al. transforms raw data into transformed data and subsequently searches

said transformed data for elements of said data in accordance with search parameters,

note again Item 636. These parameters necessarily indicate "certain properties" of said

data. In Yates, III et al. the main goal of the method and apparatus recited is the

correlation of a peptide fragment to a parent protein and the search of the transformed

data in Yates, III et al. is performed to indicate the presence of a certain protein (Note

Step 640).

## *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 69 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Yates, III et al. (USPN 6,017,693) in view of Higgs, Jr. et al. (USPN 5,885,841).

Yates, III et al. teaches all the required limitations of claims 33 and 41 as pointed

out above.

Yates, III et al. fails to teach or suggest the use of a "wavelet transformation" to

generate the hierarchical data format pointed out above.

Higgs, Jr. et al. teaches at Col. 17 Lines 42 to 68 that the ion spectral data, called

the ion chromatogram in Higgs, Jr. et al., has applied thereto a wavelet transformation is

processed to output filtered spectral data.

Higgs, Jr. et al. modifies Yates, III et al. to utilize wavelet transformations to

output spectral data which is filtered and to generate a spectral baseline

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to process spectral data using a wavelet transformation because

Higgs, Jr. et al. teaches wavelet transformations are advantageous in that the output of

such a transform is of higher quality, or reduced noise (Col. 18 Lines 1-18), relative to

systems which process data which do not utilize wavelet transformations.

### *Conclusion*

8.      Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to David A. Vanore whose telephone number is (571) 272-

2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

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